

REMARKS

This responds to the Office Action dated **December 4, 2006**.

In the Office Action, claims 1-30 and 32-46 are noted as pending in the application, claims 1-30 and 32-46 stand rejected, no claims are objected to and no claims are allowed. No claims have been withdrawn from consideration.

Issues

1. Whether claims 17-30, 32-34 and 36 are anticipated under 35 U.S.C. 102(b) by *Weberling*, AU9170912.
2. Whether *Weberling*, AU9170912, and *Ford*, AU8447182, would be combined to one skilled in the art.
3. Whether *Weberling*, AU9170912, and *Ford*, AU8447182, could be combined as suggested in the Office Action.
4. Whether claims 1-30 and 32-46 are unpatentable 35 U.S.C. 103 over *Ford*, AU8447182, in view of *Weberling*, AU9170912.

Objections

Claims 44 and 45 are objected to because of the limitation identified as "H" (for predetermined height) lacks proper antecedent basis in the claim. These claims have been amended.

Rejections

Claims 17-30, 32-34 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by AU 9170912 A (*WEBERLING*). Claims 1-30 and 32-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over AU 8447182 A (*FORD*) in view of AU 9170912 A (*WEBERLING*).

Applicant's Disclosure

Applicants' disclosure has been discussed previously. The discussion in Applicants' 13 February 2006 response will not be repeated, but it is noted that the

Examiner recognizes and understands Applicants' fin assembly. The fin assembly has been discussed previously in the context of primary and secondary fins, that the secondary fin 9 is smaller than the primary fin 6, and that the primary fin is forward of the secondary fin. The benefits of this construction are demonstrated in Applicants' specification and in the 13 February 2006 response.

However, it is noted here that increased feathering in a fin assembly such as that disclosed in the present specification is believed to provide at least some of the performance benefits of the preferred embodiments. [See, paragraph 0124.] Feathering is discussed throughout the specification, and various features of feathering are included in the newly added claims. Support for the newly added claims is as follows:

Claim 58: paragraph 83. "Base 2 includes a bottom surface 15 that is substantially planar and which is abutted with an adjacent and opposed substantially planar surface 16 of board 5."

Claim 61: Figures 1 - 9.

Claim 62: Original claim 43.

Claim 63: Original claim 35.

Claim 64: Figures 3, 4, 5 and 9.

Claim 59: Figures 3, 4, 5 and 9.

Claim 65: Original claim 32.

Claim 66: Original claim 33.

Claim 67: Original claim 34.

Claim 68: Original claim 47.

Claim 69: Original claim 48

Claim 70: Original claim 49.

Claim 71: Original claim 29.

Claim 72: Original claim 30

Claim 73: paragraph 0115: It will be noted that fin 6 [maneuvering fin section] of assembly 81 extends along plane 19, while fin 9 [stabilizing fin section] extends at an angle to that plane.

Claim 74: paragraph 0124 "In comparison to prior art assemblies, the surface area of the preferred embodiments has been, in effect, "removed" from the fin assembly to create the feathering, and in part "redistributed" to a point closer to board 5." Para 0127 "undercut or feathering".

Claim 75: paragraph 0127 "Secondary fin [stabilizing fin section] or lobe".

Claim 76: Figs 1, 3 and 9.

Claim 60: Figs 1 - 9.

It is noted here also that the larger fin extends at an angle to the craft to which it is attached and the larger fin has an acute angle side and a side opposite the acute angle side (an obtuse side). The smaller fin is positioned on the acute angle side of the larger fin. It is also noted that one example of the larger fin may be considered to have a convex side and a concave side, and in the disclosure, the smaller fin is on the concave side of the larger fin. In another aspect, the larger and smaller fins in one example may be considered to be arranged in such a way that the assembly has a rake, and that rake can have an angle of less than about 90 degrees. The concept of a rake in the context of the fin assembly is discussed in the Applicants' specification at page 15, lines 10-21.

Cited Prior Art

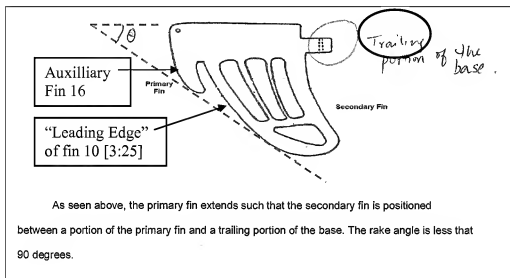
Anticipation

It is well understood that a showing of anticipation requires proof that the single reference establishes each and every element of the claim. In the present case, at least one element of the allegedly anticipated claims is missing from the *Weberling* reference, namely the rake.

Claims 17-30, 32-34 and 36 are rejected as being allegedly anticipated by *Weberling*. All of these claims recite a characteristic of a "rake", which is defined in Applicants' Specification at paragraph 0125. Specifically, the rake of a fin assembly is defined in the specification by the angle to the surface of the surf craft that is created by

a tangent "to the respective rears" of the fins. [See, paragraph 0125, line 1.] An example of the rake of a fin assembly 91 is shown in FIG. 9 where the line 93 lies tangent to the rears of fins 6 and 9. The resulting angle is about 75 degrees.

In the Office Action (page 3), the alleged "rake" of *Weberling* is illustrated as follows:



Three notation's have been added to the Office Action image to demonstrate the clear error in the Office Action. First, the "Auxiliary Fin 16" is identified, and that is the element that the Office Action identifies as the "Primary Fin". The *Weberling* reference specifically states that the auxiliary fin 16 is "forward of the leading edge" of the fin 10. [See, *Weberling*, page 3, line 25, emphasis added.] Second, the leading edge of the fin 10 is identified, and as recited in the reference, it can be seen that the auxiliary fin 16 is forward of the leading edge of the fin 10. Third, a hand written notation in the original Office Action mentioning a "Trailing" portion of the fin has been circled. This notation is circled to demonstrate that the Examiner understands which is the leading portion of the fin and which is the trailing portion of the fin.

According to the Office Action, "the rake angle is less than 90 degrees." According to the Office Action, at least as it is illustrated, the rake is determined by a

tangent to both the leading edges of the auxiliary fin 16 and the fin 10. By that designation, the Office Action states that the rake is less than 90 degrees. However, the Office Action ignores the meaning of "rake" as defined in Applicants' specification, paragraph 0125, which is the angle of a line tangent to the respective "rears of fins 6 in 9". Instead of the rears of the fins 16 and 10, the Office Action puts a line on the leading edges of the fins. Without more, it is clear that any rejections of claims defining a rake are clear error because the Office Action does not demonstrate a rake.

Not only does the Office Action demonstrate clear error by drawing a tangent to the fronts of the fins, the line also demonstrates that it is virtually impossible for a tangent to the rear of one *Weberling* fin be also tangent to the rear of the other *Weberling* fin. Consequently, the Office Action was left only with making an erroneous line and calling it a "rake".

Conversely, if the Office Action is trying to establish a different definition of "rake", no such definition is provided. Additionally, a definition of "rake" that puts a tangent on the leading edges of the fins, as illustrated in the Office Action, is directly contrary to the definition of "rake" used in Applicants' specification. Therefore, without more, all of the anticipation rejections cannot stand.

Obviousness

Claims 1-30 and 32-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over AU 8447182 A (*FORD*) in view of AU 9170912 A (*WEBERLING*).

Ford describes a discrete secondary fin trailing a primary fin. The fins are mounted separately into two respective fin boxes, or one extended fin box, where the larger fin is taught to be the leading fin, and the combination is said to improve maneuverability. *Weberling* shows an integral small auxiliary fin which is disposed at the leading edge of the main fin. However, *Weberling* is directed towards buoyant perforated fins having an impervious skin and it appears that the auxiliary fin is simply added as an afterthought. *Weberling's* buoyant fins allegedly solve the problem of lost fins due to broken or failed clamps for the fin box. The difference between the

teachings of *Ford* and *Weberling* is that they teach, if anything, the exact opposite of each other. Their differences are far more than an integration of a trailing and a leading fin onto a common base (even though that would not obtain the present invention as claimed). *Ford* teaches that a smaller fin should trail a larger main fin in a pair of separate fins, while in *Weberling*, a pair of fins are mounted on a buoyant common structure where, as an afterthought, a smaller fin leads a main fin. There is no reason to combine the two references, and even if they were combined, they would not produce the Applicants' inventions.

As stated in the recent Supreme Court case of *KSR Int'l. Co. v. Teleflex Inc.*, "[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art". It is respectfully submitted that in this case there is no motivation provided in either *Ford* or *Weberling* to combine the two documents together. Nor is there any teaching or suggestion to do so, and in fact they teach away from each other. This is partly because they teach in different directions regarding the placement of fins (or do not teach at all), and furthermore, to combine the two may also give unpredictable and unacceptable results. The background section of *Ford* (pages 2 - 4), the primary reference in the Office Action, shows the unpredictable nature of fluid flows around fins and surfboards, such that small changes such as making two small fins on either side of a board rather than one central fin makes certain unacceptable performance characteristics such as requiring huge physical strength to make a turn. This makes for conservative designers in the field of surfboard fins. Therefore, one skilled in the art of surfboard fins would not be motivated to produce such a significant change in *Ford* or in *Weberling* as the combination urged in the Office Action. The Office Action does so only because the present claims call for it, and without those claims, there would be no motivation for one skilled in the art to make such a combination, with or without the two references.

The differences between the two references is further shown by the fact that the Australian Patent Office at the time of classification placed the inventions in different IPC classes as an indicator that they were in different fields of technology. (*Ford* is in

B63B 35/79 - Surf boards; *Weberling* is in B63B41/00 - Drop keels, e.g. Center boards, and side boards).

Therefore, the two references would not and could not be combined, and the Office Action makes no showing that they could. Even if they were combined, the combination would not give the result urged by the Examiner. The obviousness rejections are not supported.

Claims

Consider now the claims in the application. None of the cited references teach or suggest the claimed combinations. For example, claim 1 is an independent apparatus claim reciting in part:

“a larger fin extending from the base, the larger fin extending at an angle to the first direction and having an acute angle portion such that the larger fin has an acute angle side and a second side opposite the acute angle side; and

“a smaller fin extending from the base and positioned on the base relative to the larger fin adjacent the acute angle side and substantially opposite the second.”

None of the cited references taken singly or in combination teach or suggest the claimed combination, the recited elements quoted above, or “a smaller fin extending from the base and positioned on the base relative to the larger fin adjacent the acute angle side and substantially opposite the second.” The smaller fin being on the acute angle side of the larger fin results in greater drive and stability, in a manner not achieved with two fins oriented with the smaller fin opposite the acute angle side of the larger fin, without sacrificing maneuverability. There is no teaching or suggestion of combining *Ford* or *Weberling*, and *Weberling* has the auxiliary fin opposite any acute angle side of the primary fin. Clearly claim 1 is patentable over the cited references.

Claims 2-11 are dependent directly or indirectly from independent claim 1 and are asserted as being patentable for the same reasons as discussed above with respect

to claim 1, for the additional combinations in the dependent claims as well as for the additional limitations recited in the dependent in claims.

Claim 12 is an independent apparatus claim reciting in part:

“a larger fin extending from the base and having a convex primary edge and a concave primary edge; and

“a smaller fin extending rearwardly from the base and having a leading secondary edge and a trailing secondary edge, wherein the smaller fin is on the concave primary edge side of the larger fin.”

None of the cited references taken singly or in combination teach or suggest the claimed combination, the recited elements quoted above, or “a smaller fin extending rearwardly from the base and having a leading secondary edge and a trailing secondary edge, wherein the smaller fin is on the concave primary edge side of the larger fin.” There is no teaching or suggestion of combining *Ford* or *Weberling*, and nothing in *Weberling* teaches or suggests a smaller fin on a concave primary edge side of a larger fin.

Claim 13 is dependent directly from independent claim 12 and is asserted as being patentable for the same reasons as discussed above with respect to claim 12, for the additional combinations in the dependent claim as well as for the additional limitations recited in the dependent in claim.

Claim 14 is an independent apparatus claim reciting in part:

“a larger fin extending from the base and having a convex primary edge and a concave primary edge and a high rake; and

“a smaller fin extending rearwardly from the base and having a first secondary edge and a second secondary edge, the smaller fin being adjacent the concave primary edge of the larger fin and providing the assembly with a rake of less than about 90°; and

“a feathered portion between the larger fin, the smaller fin and the base.”

None of the cited references taken singly or in combination teach or suggest the claimed combination, the recited elements quoted above, or “a smaller fin extending

rearwardly from the base and having a first secondary edge and a second secondary edge, the smaller fin being adjacent the concave primary edge of the larger fin and providing the assembly with a rake of less than about 90°." Nothing in *Ford* or *Weberling* shows a smaller fin being adjacent a concave primary edge of a larger fin and an assembly with a rake of less than 90 degrees, or a feathered portion between the larger fin, the smaller fin and the base as claimed.

Claims 15-16 are dependent directly or indirectly from independent claim 14 and are asserted as being patentable for the same reasons as discussed above with respect to claim 14, for the additional combinations in the dependent claims as well as for the additional limitations recited in the dependent in claims.

Claim 17 is an independent apparatus claim reciting in part:

"a primary fin that extends from the base and which has a first edge and a second edge that meet at a primary tip, where the edges lie substantially within a common plane; and

"a secondary fin extending from the base, away from the primary fin, and wherein the secondary fin, having an edge that has a tangent that is parallel to the plane and the primary fin extends such that the secondary fin is positioned between a portion of the primary fin and the base for providing the assembly with a rake of less than about 90°."

None of the cited references taken singly or in combination teach or suggest the claimed combination, the recited elements quoted above, or "a secondary fin extending from the base, away from the primary fin, and wherein the secondary fin, having an edge that has a tangent that is parallel to the plane and the primary fin extends such that the secondary fin is positioned between a portion of the primary fin and the base for providing the assembly with a rake of less than about 90°." Nothing in *Ford* or *Weberling* has a primary fin extending such that a secondary fin is positioned between a portion of the primary fin and the base for providing an assembly with a rake of less than 90 degrees.

Claim 18 is an independent apparatus claim reciting in part:

"a primary fin that extends from the base at an acute angle and which has a leading edge away from the acute angle and a trailing edge adjacent the acute angle that meet at a primary tip; and

"a secondary fin extending from the base, the secondary fin, having an edge that has a tangent that is parallel to the surface wherein the primary fin extends relative to the secondary fin such that the assembly has a rake of less than about 90°."

None of the cited references taken singly or in combination teach or suggest the claimed combination, the recited elements quoted above, or "a secondary fin extending from the base, the secondary fin, having an edge that has a tangent that is parallel to the surface wherein the primary fin extends relative to the secondary fin such that the assembly has a rake of less than about 90°." Nothing in *Ford* or *Weberling* shows a primary fin and a secondary fin wherein the primary fin extends relative to the secondary fin such that the assembly has a rake of less than about 90 degrees.

Claims 19-34 are dependent directly or indirectly from independent claim 18 and are asserted as being patentable for the same reasons as discussed above with respect to claim 18, for the additional combinations in the dependent claims as well as for the additional limitations recited in the dependent in claims. Note claim 24 reciting in part "wherein the trailing edge is feathered in an area intermediate of the secondary fin and the leading edge." Note also claim 25 reciting in part "wherein the trailing edge and the secondary fin are joined by an intermediate arcuate edge defined by the base." Claim 26 recites in part "wherein the arcuate edge is of varying radius." Claim 29 recites "wherein one or both of the faces are substantially planar."

Claim 35 is an independent apparatus claim reciting in part:

"a large fin extending from the base in a direction at an acute angle relative to the base;

"a smaller fin extending from the base in the acute angle defined by the large fin and the base, the smaller fin trailing the large fin and the large fin extending relative to the smaller fin such that the assembly has a rake

of less than 90° , wherein the base, the large fin and the smaller fin include a combined total sectional area (A_f); and

“a feathered portion between two or more of the large fin, the smaller fin and the base, wherein the feathered portion includes a sectional area (A_p) and $A_p > 0.2 \cdot A_f$.”

None of the cited references taken singly or in combination teach or suggest the claimed combination, the recited elements quoted above, or “a smaller fin extending from the base in the acute angle defined by the large fin and the base, the smaller fin trailing the large fin and the large fin extending relative to the smaller fin such that the assembly has a rake of less than 90° , wherein the base, the large fin and the smaller fin include a combined total sectional area (A_f)” or “a feathered portion between two or more of the large fin, the smaller fin and the base, wherein the feathered portion includes a sectional area (A_p) and $A_p > 0.2 \cdot A_f$.” Nothing in *Ford* or *Weberling* shows a smaller fin trailing the large fin and the large fin extending relative to the smaller fin such that the assembly has a rake of less than 90 degrees.

Claim 36 is dependent directly or indirectly from independent claims 1, 17 or 18, and is asserted as being patentable for the same reasons as discussed above with respect to those claims, for the additional combinations in the dependent claim as well as for the additional limitations recited in the dependent in claim. Claim 37 is dependent directly or indirectly from independent claims 12, 14 or 35, and is asserted as being patentable for the same reasons as discussed above with respect to those claims, for the additional combinations in the dependent claim as well as for the additional limitations recited in the dependent in claim.

Claim 38 is an independent method claim reciting in part:

“forming a larger fin that extends from the base at an acute angle relative to the base and which has a leading primary edge and a trailing primary edge; and

“forming a smaller fin that extends from the base such that the smaller fin is in the acute angle of between the larger fin and the base and which has a leading secondary edge and a trailing secondary edge, such

that the larger fin extends relative to the smaller fin such that the assembly has a rake of less than 90°."

None of the cited references taken singly or in combination teach or suggest the claimed combination, the recited elements quoted above, or forming a smaller fin that extends from the base such that the smaller fin is in the acute angle of between the larger fin and the base and which has a leading secondary edge and a trailing secondary edge, such that the larger fin extends relative to the smaller fin such that the assembly has a rake of less than 90°." Nothing in *Ford* or *Weberling* shows forming a smaller fin that extends from the base such that the smaller fin is in the acute angle of between the larger fin and the base, or a larger fin that extends relative to the smaller fin such that the assembly has a rake of less than 90 degrees.

The claims 39-41 are dependent directly or indirectly from independent claim 38 and are asserted as being patentable for the same reasons as discussed above with respect to claim 38, for the additional combinations in the dependent claims as well as for the additional limitations recited in the dependent in claims.

Claim 42 is an independent apparatus claim reciting in part:

"a larger fin extending from the base at an acute angle relative to the base; and

"a smaller fin extending from the base in the acute angle between the larger fin and the base, the smaller fin trailing the larger fin and the larger fin extending rearwardly of the smaller fin for providing the assembly with a rake of less than 90°, wherein a high proportion of A is near the surface."

None of the cited references taken singly or in combination teach or suggest the claimed combination, the recited elements quoted above, or "a smaller fin extending from the base in the acute angle between the larger fin and the base, the smaller fin trailing the larger fin and the larger fin extending rearwardly of the smaller fin for providing the assembly with a rake of less than 90°, wherein a high proportion of A is near the surface." Nothing in *Ford* or *Weberling* shows a smaller fin extending from the base in the acute angle between the larger fin and the base, or the larger fin extending

rearwardly of the smaller fin for providing the assembly with a rake of less than 90 degrees.

Claims 43-46 are dependent directly or indirectly from independent claim 42 and are asserted as being patentable for the same reasons as discussed above with respect to claim 42, for the additional combinations in the dependent claims as well as for the additional limitations recited in the dependent in claims.

New apparatus Claim 57 recites:

"A unitary fin structure suitable for use with a surfboard, the unitary fin structure comprising a fin body having a base edge which when the fin structure is installed cooperates with an underside structure of the surfboard, the fin body including a front edge and a rear edge, a feathered portion in the rear edge extending towards the front edge, the feathered portion separating part of the fin body into two limbs, one limb being between the base edge and the feathered portion so as to form a stabilizing fin section of the fin body and the other limb forming a maneuvering fin section of the fin body."

None of the cited references taken singly or in combination teach or suggest the claimed combination.

It is respectfully submitted that new claim 57 overcomes the Examiner's objections, and recites a unitary fin structure comprising a fin body having a base edge which when the fin structure is installed cooperates with an underside structure of the surfboard, the fin body including a front edge and a rear edge, a feathered portion in the rear edge extending towards the front edge, the feathered portion separating part of the fin body into two limbs, one limb being between the base edge and the feathered portion so as to form a stabilizing fin section of the fin body and the other limb forming a maneuvering fin section of the fin body.

It is submitted that the cited documents in the Office Action do not teach or suggest the abovementioned combination of features. While *Weberling* includes a feathered portion between two fins, the fins are disposed fore and aft of the feathered portion, and there is no stabilizing fin section disposed between the feathered portion

and a base edge. *Ford* does not include a unitary fin structure, but instead two separate fins. It is submitted that the differences between the invention described in *Ford* and the present invention are highlighted further when assembled, because, although they include a feathered portion between each one, the feathered portion, as in *Weberling*, divides the fins into fore and aft fins and as such, there is no stabilizing fin section between the feathered portion and a base edge.

The stabilizing fin section disposed between the feathered portion and the base edge is significant because "the use of a relatively long length adjacent to [the board underside] surface ensures...stability" [see, Applicants' Specification, paragraph 0126]. Furthermore, "the rearward extent of the secondary fin or lobe [stabilizing fin section]" allows the "depth of the primary fin (maneuvering fin section) to be reduced and the undercut or feathering (size of the feathered portion) to be increased, while adding to the stability of the assembly in use. That is, the embodiments of the invention are able to provide both maneuverability and stability, two factors that have traditionally had to be traded off against each other when designing a fin" (paragraph 0127).

The stabilizing fin section disposed between the base edge and the feathered portion provides a greater area of fin body close to the underside of the board when installed, which the specification supports as being advantageous at paragraph 0131, wherein "the improved performance is due...to the increased sectional area in the portion of the assembly that is adjacent to the [underside board] surface". Furthermore at paragraph 0133, "The primary fin [maneuvering fin section] has a sectional area that is substantially less than a prior art fin, and allows the surfer to perform smaller radius turns... However, the directional stability is not degraded due to the presence of the secondary fin [stabilizing fin section]."

It is also respectfully submitted that the placement of the stabilizing fin between the feathered portion and the base structurally distinguishes the present invention from the cited art because the secondary fins shown in *Ford* and *Weberling* are affected by flow from the primary fin, whereas in the present invention, the majority of the stabilizing fin does not get wash from the primary fin. This arrangement increases stability over the cited art.

Clearly new claim 57 is patentable over the references. Claims 58-76 are dependent directly or indirectly from independent claim 57 and are asserted as being patentable for the same reasons as discussed with respect to claim 57, for the combinations in the dependent claims as well as for the additional limitations recited in the dependent claims.

Reconsideration of the application and claims in view of the foregoing amendments and remarks is respectfully requested. Early notice of allowance thereof is earnestly solicited.

If the Examiner does not believe the foregoing amendments place the application in a condition for allowance, Applicants respectfully request the courtesy of a telephone interview to discuss the claims.

This response is being filed with a Petition for A Three-Month Extension of Time.

Please charge any additional fees that may be due or credit any overpayments to our deposit Account No. 50-0655. If a petition is required in conjunction with this paper, please consider this a request for such a petition.

Respectfully submitted,

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